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ABSTRACT

For those students incurring direct educational expenditures that are high enough, the current personal income tax will discourage investment in human capital, assuming tax rates are essentially proportional over the relevant range. In all probability, however, any distortion between investment in human and physical capital is quantitatively small. This suggests that distortions among different types of education and training under the personal tax code are more important. Under the corporate tax code, human capital and research and development might be favored over investment in physical capital within the firm. However, because firms have little incentive to train their workers for new jobs outside the firm, the distinction between current job and noncurrent job is also relevant in the corporate tax analysis. The current tax code requires firms to treat differently their costs for physical and capital investments, investment in research and development, and human capital development. If it is administratively not possible to amortize the costs of human capital development against future earnings, at least they should be treated comparably with research and development costs. Under the personal income tax code, all investments in education should be immediately and fully deductible by individuals against the current wages and salary of the trainee. They should be deducted on Schedule A of the federal income tax form rather than be subject to a 2 percent expenditure floor. The deduction should be phased out with higher total reported income and allowable against earned income only. (The document contains 36 references.) (CML)

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14. THE TAX TREATMENT OF TRAINING AND EDUCATIONAL EXPENSES

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14. THE TAX TREATMENT OF TRAINING AND EDUCATIONAL EXPENSES

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I. Introduction.

This paper evaluates the tax treatment of investments in the most important components of human capital, the education and training of workers, under both the personal and corporate tax codes. It focusses on the ways in which the current tax laws affect the relative attractiveness of investments in human capital compared to other investments. First, the provisions of the personal tax code are analyzed to determine which types of education and training are favored or discouraged by current law. Second, this paper examines the effects of tax law on investment in human and physical capital, on the one hand, and investment in research and development, on the other hand. This latter analysis is based upon the corporate tax code.

Outline of the Paper. Section II describes the criteria we employ and summarizes the existing research on the effects of taxation on human capital versus physical capital investment. The current treatment of education and training costs under the personal income tax is outlined in section III below. The Tax Reform Act of 1986 and subsequent

legislation changed several provisions of the personal income tax law with respect to education costs. Possible distortions created by that tax treatment are examined subsequently. Two effects of personal income taxation are of particular concern. The first is the choice between investment in human and in physical capital. The second concerns the choice between different categories of education and training investment. The current personal tax law distinguishes between educational investments related to a taxpayer's current occupation and those investments that qualify the taxpayer for an alternative occupation. The distinction in tax treatment discourages training which would facilitate an economically efficient change of occupation.

Section IV describes the current treatment of worker education and training expenditures under the corporate tax laws. It compares the tax treatment of human capital, physical capital, and research and development spending. (It also considers the extent of favorable treatment granted by the corporate tax code.) Section V outlines proposals to improve the allocation of resources through changes in the personal and corporate tax codes. Shortcomings and merits of alternative proposals are also discussed. The conclusions appear in section VI.

II. Tax Objectives: Criteria and Literature Review.

Criteria. Traditionally, tax laws are evaluated according to two classes of criteria: equity and efficiency. Equity is often judged by how well the tax base conforms to the concept of Haig-Simons income. In

this view, taxes should be levied on net changes during a year in total economic well-being. The net change in total well-being is given by changes in net worth and in leisure time. Previously taxed wealth holdings are excluded from this income measure, as are the economic costs incurred during the current period to generate income (Simons, 1938). The efficiency objective of taxation is met when revenues are generated without distorting the choices that would have been made in the absence of taxation -- i.e., by tax "neutrality."[1] If the tax system tends to alter decisions that change will be referred to as a "distortion." If not, we will say the system is "neutral." This paper describes how choices about education and training are affected by the tax system.

While equity and efficiency are reasonable goals, implementing them consistently in the tax code is difficult for many reasons, including ambiguities in the definition of taxable income. This crucial issue bears on our subsequent discussion of the costs incurred for investment in education and training. The problem is this: The Haig-Simons concept of net income attempts to measure net well-being. Whereas income needs to be measured in tangible monetary quantities if it is to be equitably taxed, well-being often includes aspects which are not explicitly priced in the market. Examples include the value of leisure time, time used in productive non-market activities and the value of good health. We shall refer, for convenience only, to all non-market uses of time as "leisure."

Because the value of leisure is not assessed as income, two people who choose different consumption or production mixes yielding equivalent

levels of personal satisfaction can pay different amounts of federal income tax. If one citizen chooses to consume relatively more leisure and the other chooses to consume relatively more goods purchased with higher money income, the consumer of more leisure has sacrificed paid employment in favor of this consumption choice, yet the income equivalent of this leisure is not taxed. If the goal is to minimize the distortion of individual choices, the tax base should include items like the monetary value of leisure. However, inclusion of these income components may contradict conventional views of fairness (Warren, 1980; Stephan, 1984).

By the same Haig-Simons tax objective argument, intangible costs undertaken in order to create income should be as deductible from taxable income as are money costs. Within the context of education and training, the time that is invested in education and training is as much a cost as the training materials purchased (i.e., books, tuition). In this respect, both types of costs should be set against the additional well-being resulting from the pursuit of education or training.

The full cost of acquiring education or training can include both direct outlays and foregone opportunities. For most students beyond the high school level, at least some portion of expenses for tuition, books, and other related educational purchases or fees are incurred directly to undertake higher education. Occupational training can involve direct spending by the trainee, for example, through formal training schools, or by the firm, for example, through on-the-job training given by senior employees. When employers pay wages to trainers and trainees for time devoted to training rather than production, they are incurring direct

costs for workforce training. Employers also incur direct costs in purchasing and developing training materials.

Students also forego currently attainable earnings to invest in themselves. An individual who could be working but is attending a formal technical training program is clearly sacrificing earnings. Less obviously, but no less true, workers receiving on-the-job training in generally productive activities forego the higher wages they could have obtained by choosing jobs without any training component. Current production sacrificed by firms in favor of training in firm-specific skills is also costly. Together, foregone personal earnings (or foregone leisure) and foregone production, together with direct expenses for education and training, comprise the full investment cost of education or training.

Haig-Simons income, neutrality, foregone earnings, and leisure are concepts which play important roles in the theoretical literature evaluating tax systems. These concepts can be incorporated into the tax system only imperfectly. Nevertheless, paying due attention to them has consequences of great practical importance for the appropriate tax treatment of education and training expenditures, as we shall now see.

Literature Review. Many theoretical models have been developed indicating how tax incentives affect the choice between investment in physical and human capital (Boskin, 1975; Stephan, 1975; Heckman, 1976; Eaton and Rosen, 1980; Sgontz, 1982).[2] Typically these models incorporate only selected features of corporate or personal taxation. For example, Boskin described a model using foregone earnings as the

only cost expended to invest in education. When tax rates are proportional, the tax does not distort pre-tax choices to investment in human capital (see Boskin, 1975). This result applies more generally to those circumstances in which the full cost of education or training is immediately deductible and in which taxes are imposed on earned income only (see Eaton and Rosen, 1980). Intuitively, this result can be explained this way. Suppose that no tax is paid in the initial period because the student sacrifices earning any income in order to invest in education, but the resulting income is fully taxed. Usually, capital acquisition costs are not initially tax deductible, but they are fully amortized later and deducted. Since taxes are proportional and only on earned income, the tax payer is indifferent between the equivalent of immediately expensing capital acquisition costs but paying a tax on all income in the future, versus paying tax on earned income less a proportionate share of capital acquisition costs in the future.

A more complicated model, introduced by Heckman (1976), analyzes a tax on both earned and nonearned income (wages and interest), but retains the assumption of a proportional tax rate. Taxation now favors investment in human capital since the costs of education are immediately and fully deductible. By taxing interest earnings, the after-tax interest rate is lowered relative to the return on human capital. While the value of the amount invested or saved is taxed as soon as it is first obtained, the tax on human capital is applied on future earnings. Because future taxes are valued less than the same tax payment currently, the taxpayer prefers to invest in human capital.[3] This model more closely resembles the current corporate tax treatment of human

capital and physical capital investment where most training costs are immediately deductible but where physical investment costs must be amortized over time.

Eaton and Rosen (1980) specified a general model, used it to illustrate the basic Boskin and Heckman results, and then added uncertainty to the analysis of investment in human capital relative to physical capital. Under these circumstances, taxation of earnings buffers expected wage gains and losses, but also reduces expected income. These two aspects of taxation have opposing effects on investment in human capital. The first reduces risk and thus encourages more human capital investment. The second effect curtails investment in human capital as long as risky investing is less desirable at lower income levels. Since these two effects act in opposite directions, the net effect of taxation on human capital investment is "ambiguous" -- even under a proportional earnings tax and even when foregone earnings are the only cost of human capital investment.

Sgontz (1982) also analyzed a fairly general set of circumstances in which the tax base includes both wages and interest earnings and in which educational costs include both foregone earnings and direct expenditures. In this analysis, only foregone earnings are excluded from taxable income; the model thus resembles the current personal income tax treatment of investments when educational fringe benefits and direct costs of educational investment are not excludable from income. Under these circumstances, with proportional taxation, the effect of taxation on human capital investment varies with the ratio of direct educational costs to foregone earnings. The proportional tax rate and

the rate of return on physical capital investment determine a critical ratio between direct educational costs and foregone earnings. If the critical ratio is exceeded (direct costs are larger relative to foregone earnings), increases in tax rates reduce investment in human capital. As long as actual direct expenditures for education or training are less than the critical ratio, increasing taxes favors investment in human capital. Since different students face different direct cost shares, they may react differently to increases in tax rates. As noted below, the variations in the incentive structure in this model may correspond to real world differences in educational investment according to whether or not it is job-related.

With progressive taxation, the models summarized above are greatly complicated (see Sgontz, 1982). With reduced tax progressivity under the Tax Reform Act of 1986, however, the less complicated results arising from models with proportional tax rates are not unreasonable. The results based on foregone earnings alone are also reasonable if foregone earnings dominate total education costs or if all educational costs are immediately deductible from earnings for tax purposes. The Sgontz model illustrates the extent of dominance required when direct costs are not fully deductible. Based on simple calculations from this model and reasonable assumptions about tax and interest rates, even a small ratio of direct education and training costs to foregone earnings is sufficient to make human capital investment less attractive at higher tax rates.

In summary, when a proportional tax is levied on earned income and interest income and when foregone earnings are the only cost of

investment in human capital, then human capital investment is favored relative to physical capital investment (Heckman, 1976; Eaton and Rosen, 1980; Sgontz, 1982). These assumptions are not precisely met in practice and empirical research to test the effective rate of return on human versus non-human capital may be appropriate. For those students incurring direct educational expenditures which are high enough, the current income tax will discourage investment in human capital (assuming tax rates are essentially proportional over the relevant range). In all probability however, any distortion between investment in human and physical capital is quantitatively small. This suggests that distortions among different types of education and training under the personal tax code are more important. For that reason, we concentrate on this distortion in section III. Under the corporate tax code, human capital and research and development might be favored over investment in physical capital within the firm. However, because firms have little incentive to train their workers for new jobs outside of the firm, the current job versus non-current job distinction is also relevant in the corporate tax analysis.[4]

III. Education and Training under the Personal Income Tax.

A. Current Tax Treatment of Education and Training Expenditures.

This section describes the current tax code and the resulting incentives in detail, making use of the concepts developed in the preceding section.

1. Foregone earnings. Earnings foregone in order to undertake investments in education or training are fully excluded from taxable income. No one suggests they be treated otherwise, but the consequences are significant. For those foregoing regular earnings for formal education, these foregone earnings typically comprise a large share of total educational costs. For those participating in employee training programs provided by the firm, foregone earnings might well comprise all of the individual's cost of training. For individuals, this exclusion is tantamount to the expensing for tax purposes of the major cost of acquiring human capital. Neutrality between current training investments and physical investments requires that both costs be treated comparably with other investments. Since immediate expensing of most long lived physical capital is not permitted, human capital investment is favored by immediate exclusion of foregone earnings. This advantage is inherent in tax systems, and any suggestions for policy change must begin from the advantaged position it confers on education and training.

2. Out-of-pocket costs. Direct expenses on education and training are treated differently under the personal tax code, depending on the nature or objective of the education undertaken and the method of financing utilized. Only those personal expenditures directly related to an employee's current occupation reduce taxable personal income. In this regard, from the Haig-Simon viewpoint, extension education is treated as a cost of earning current income. Two constraints limit deductibility. First, the courses cannot be educational prerequisites for the employee's current occupation. Second, the job-related courses

cannot enable the worker to choose a new occupation upon their completion (Bernstein, 1988; Internal Revenue Service, 1988a, 1988b, and 1988d).

Employee financed training. Current, job-related, employee out-of-pocket expenditures on education must be reported as itemized deductions from personal income (Federal Income Tax Schedule A). For taxpayers whose deductions exceed the standard deduction, unreimbursed educational expenses related to the employee's current occupation are deductible but are subject to a floor. The tax code treats educational expenses related to employment as a component of "job expenses and most other miscellaneous deductions;" only the excess over two percent of adjusted gross income qualifies as an itemized deduction on Federal Income Tax Schedule A (Internal Revenue Service, 1988a).

The floor and the standard deduction cloud the impact of tax deductibility on the decision to undertake education. For these to affect incentives, the taxpayer must first have enough deductions to itemize. Second, the taxpayer must have current job-related expenses equalling at least two percent of adjusted gross income for the full impact of the tax deductibility of current job-related education spending to take effect. If these two conditions are met, then personal education expenditures related to the employee's current job are immediately and fully deductible from income even though the returns from the investment in education are likely to be earned over several tax years.

For those able to take advantage of this deduction, both direct costs and foregone earnings associated with current job-related investment in education and training reduce taxable income immediately by the full cost of the investment. An equal amount invested in physical capital would be amortized over time, the present value of which is less than an immediate deduction. Those unable to take full advantage of this deduction do not face the same clear incentive. For them, one component of education cost is fully excludable (foregone earnings) but the other does not reduce taxable income (education expenditures). Depending on the relative shares of these non-taxable and taxable cost components, the educational investment may or may not be favored by the tax code according to the model specified by Sgontz (1982). If lower income taxpayers are less likely to have the adequate supplemental deductions, they are also less likely to benefit from the deductibility advantage of job-related out-of-pocket human capital investment. Sgontz's article suggests that nondeductibility of large enough direct education costs more than eliminates the inherent advantage conferred on human capital investments by the exclusion of foregone income from taxable income.

Employer financed training. Tuition financed by employers was treated differently from those educational expenses fully paid by an employee until quite recently. Until December 1988, educational costs paid by an employer were subject to a maximum tax free annual income exclusion of $5,250, with some restrictions, if distributed through an employer's "educational assistance program" (Internal Revenue Code,

Section 127, Internal Revenue Service, 1988a. For 1988, the law restricted this exclusion to undergraduate level education.) Employer payment for educational expenditures beyond the tax free limit was reportable as taxable income by the employee.[5] Unless Congress revives this provision, this treatment will change beginning with tax year 1989.[6]

Under section 127 of the law which recently expired, education was treated as a fringe benefit. Exclusion for education in this guise removes the current job versus non-current job distinction as long as the firm is willing to finance both types of education. Exclusion is analogous to full and immediate deduction of the direct education costs from total compensation. Under these programs, human capital investment is tax-favored once again, since physical investment costs would need to be amortized. The tax incentive to an employee is at the employer's discretion. If a firm chooses to offer full educational assistance under section 127, its employees gain the tax advantage. A firm may choose, however, to provide educational assistance only for current job-related courses. In that event, current job-related training is favored relative to individual physical capital investment, but non-current job-related expenditures by the employee would be non-deductible and hence disadvantaged. For those working in firms not offering any assistance at all, the tax incentive is once again dependent upon the ratio of direct costs to foregone earnings since only job-related training costs are deductible from income when paid directly by the employee.

Without a legislative extension of recent practice, if an employer provides full financing for educational expenses which would be

deductible if the employee financed the expenses alone, these amounts need not be included in taxable income at all. If employers finance broader training expenditures, the total education benefit could be considered to be taxable income. The employee, however, could deduct any eligible job-related proportion from taxable income (Ernst & Whinney, 1988; Internal Revenue Service, 1988a and 1988d; White, 1989).

Special circumstances. In addition to these general personal tax treatments of direct educational outlays, several features of the tax code address specific types of educational costs. Scholarships and fellowships receive preferential treatment under the tax code. Some universities grant tuition waivers to employees and their dependents. This, too, is treated preferentially by the tax code. Finally, interest payments paid on educational debt are also costs of education. Like many other self-financed costs of non-current job-related education, these interest costs are not deductible from current or subsequent income.

The Tax Reform Act of 1986 taxes some previously tax-free components of scholarship and fellowship income. Amounts covering tuition and other direct costs of education are still excludable from taxable income. Under the current law, scholarship and fellowship amounts exceeding these direct costs of education are taxable, as are all scholarship and fellowship amounts requiring the recipient to work. For example, compensation paid to research or teaching assistants is taxable under current law (Internal Revenue Service, 1988d; Madoff, 1987).

Allowable scholarship and fellowship income is immediately and fully excluded from taxable income. For students receiving it, the tax treatment is certainly not neutral. For students without scholarships and fellowships, the tax incentive is again uncertain. The nondeductibility of out-of-pocket costs reduces the bias in favor of human capital investment.

Another method of financing educational expenditures also escapes taxation under the personal income tax. Some universities offer their employees tuition waivers or reductions for courses taken by their employees or their employees' dependents. As long as this benefit is available to a broadly defined group of employees rather than a relatively exclusive group (tenured faculty, for example), this tuition waiver or reduction, when used for undergraduate courses, escapes federal income taxation (Bernstein, 1988; Internal Revenue Service, 1988d; Madoff, 1987).

Prior to the Tax Reform Act of 1986, interest payments on borrowing for all educational purposes were treated identically to interest payments paid on consumer debt. Both were fully deductible against adjusted gross income by itemizers. The Tax Reform Act reduced the incentive to finance personal consumption through debt finance by ending all consumer interest deductions except for those associated with mortgage finance. The pre-existing deduction for consumer interest payments is to be phased out over three years; thus, the deduction for payments to finance education interest is being phased out as well. However, when educational spending is financed by home equity, the interest payments can be included as an itemized deduction. Gross

(1988) has written at length on the deductibility of interest payments for educational investment since the Tax Reform Act of 1986. He argues that this new nondeductibility law favors homeowners unjustly.

There may be two justifications for making interest payments for training deductible. First, if education spending is more of an investment than is the purchase of consumer durables, then treating educational interest payments differently from consumer debt is appropriate. Second, since the corporate tax code allows interest payments associated with physical capital investment to be deducted from corporate income, the same treatment should be given to interest payments associated with human capital interest. If not, interest payments on human capital are a nondeductible cost of earning income adding to other nondeductible costs, thereby reducing the advantage of human relative to physical investments.

3. Union wage concessions. When unions negotiate wage concessions in return for retraining benefits, the tax treatment of those benefits is unclear. In the absence of explicit new legislation, most such retraining arrangements would be treated as compensation to the employee.[7] However, if the external retraining benefits could have been packaged so as to fall within a qualified "educational assistance program" as defined by section 127 of the tax code and if the retraining benefits cost less than $5,250 per employee per year, the benefit might have been excluded from employee income just like any other employer-financed educational fringe benefit.[8] Under section 127, the fringe benefit must be broadly available to many employees with a wide range of

earnings levels or the benefit is not favored by income excludability. With the expiration of section 127 of the tax code, all retraining benefits paid to finance training outside of the firm are taxable income to the recipient. Retraining expenditures are taxable to the employee since the spending is intended to qualify the employee for a new occupation.

The tax incentive analysis is unchanged. If retraining benefits are exempted from taxable income, all costs of human capital investment to the retrainee would be excludable from income whereas comparable physical capital investment costs are amortized. Under such an arrangement, human capital investment by the individual would be favored over physical capital investment by the tax code. Retraining benefits are not exempt however. This large taxable benefit, when combined with small foregone earnings costs, may actually discourage retraining by the individual. From the firm side, as we shall describe in more detail in section IV, the full deductibility of employee compensation favors retraining over physical capital investment as long as the retrained workers remain with the firm. (Or, to put it another way, full deductibility of employee training offsets, at least to some degree, the chance that a trained worker may leave the firm which paid for the training.)

B. Tax Incentives.

Based on this discussion of personal tax code provisions, some general conclusions can be drawn with respect to the tax advantages and disadvantages of human capital investment.

1. Education and training vs. physical capital. Currently the advantages of human capital investment relative to physical capital investment differ for an individual by type of education or training undertaken. If the section 127 education benefit is extended, the relative advantages would also depend on who finances the education or training -- the taxpayer or the employer.

When the full costs of acquiring training are excluded or deducted from income (section 127-type education benefits, current job-related education for some taxpayers, scholarships, fellowships, and tuition waivers), human capital investment is favored. When education or training costs are non-excludable or non-deductible (non-current job-related education financed by work-study, savings, research assistantships, teaching assistantships, and all other arrangements where the student works to pay his or her way through school), the tax incentive is less clear-cut. If the non-deductible cost portion is large enough, and it is likely to be large enough, amortization may favor physical capital investment (or savings) over human capital investment.

2. Current job vs. another job. There is a clear cut and intentional advantage conferred in the current personal income tax on investments intended to produce a higher future stream of income in an employee's current occupation. As a general rule, only those expenses related to skills or learning used in a taxpayer's current occupation are allowed as deductions from income by the earner. An incentive is given to further current skills, but retraining or education which might lead to an occupational change is discouraged. This tax treatment is inconsistent with a human capital representation of educational expenses. If education is viewed as human capital investment, it is a cost of earning that augmented income, and should be so treated by the tax code. That education expenses are incurred initially but earnings are realized in the future, however, requires that education expenses be treated more like a physical capital investment than an immediate expense.

The bias in the personal income tax code against interoccupational mobility will be inefficient if it leads to underinvestment in training for changed occupations. Underinvestment can arise from differences in employee and employer knowledge about the value of general training as opposed to "firm specific" training.

Job training may be so specific that it is of value only to the firm providing it ("specific training"). Such training will not be undertaken voluntarily and financed by workers since the benefits are not portable. This specific training will be paid for by the firm, however, and the optimal amount will be provided. (This is because the

firm can equate, at the margin, the benefits arising from training with the cost to the firm.)

Alternatively, job training may be useful in other firms or industries ("general training"). Such training may be undertaken voluntarily and paid for by employees, since a worker could always change firms to reap the returns from investment in such training. If workers can fund the expense, the training will be tax deductible as noted above, as long as workers remain in the same occupation. The firm may also be willing to pay the training costs directly, provided they can recoup such costs by paying lower wages to the trainee. (For example, educational courses leading to college degrees, "general training," are often financed by employers as long as the trainee agrees to remain in the firm for a specific period after the completion of training.)

In a perfectly functioning market, the optimal amount of general and specific training will arise regardless of the portability of such training.

There are several problems, however, which could give rise to inefficient training investments when the investment is portable. First, for general training workers may be capital constrained. The firm could serve as a funding source, as noted above, but this requires agreement on the quid pro quo. Agreement also requires clarification of the corporate tax rules governing deductibility of general training expenditures, as discussed below.

Second, and perhaps more importantly, the firm may be better able to evaluate the market value of general training than are individual

workers. Such an asymmetry of information would imply either high transactions costs in financing general training or underinvestment. The high transactions costs would arise as employers simultaneously tried to inform their workers of the general training and to arrange for a suitable quid pro quo for dispensing the information. These high transactions costs would, in turn, lead to less investment than is socially efficient. If firms did not find it in their interest to dispense the information, then there would be underinvestment in portable training.

In the absence of portability, this inefficiency would not arise. Tax deductibility of the investment costs would therefore, move the level of investment closer to the optimum.

That the tax code biases human capital investments against inter-occupational mobility is infrequently criticized or defended. Inferentially, the literature suggests three reasons for tolerating this bias. First, it is difficult to distinguish learning not required for a current job from consumption. Second, the rationale for the exclusion would have to differ from that of an expense necessary for acquiring contemporaneous income -- the current basis for the deduction. Third, treating human capital symmetrically with physical capital raises conceptual and administrative difficulties (see McNulty, 1973; Stephan, 1984; Gross, 1988).

3. Education and training vs. research and development. Like physical capital and human capital investment, investment in research and development is undertaken to achieve higher future earnings.

Research and development seems more relevant to the corporate tax code since few self-employed individuals are likely to incur substantial research and development costs. Consequently, the issue is afforded a more detailed treatment in the corporate income tax section of this paper. Nevertheless, for consistency, the personal choice between human capital investment and investment in research and development through self-employment is noted here briefly.

The federal tax code allows some research and development costs to be expensed immediately. The investors reserve the option of immediate deduction or amortization over time (Internal Revenue Service, 1988c). While the foregone earnings component of human capital investment is excluded from taxable income and, therefore, treated like immediately expensed research and development, direct spending on education and training is not always deductible from personal taxable income. As is the case with physical capital, amortized treatment of research and development costs may or may not favor investment in human capital depending on the ratio of nondeductible to deductible or excludable costs. Immediately deductible research and development is favored relative to investment in human capital since direct outlays paid by a taxpayer on education facilitating retraining or contributing to new career potential are not deductible. These incentives are further complicated by a federal research and development tax credit. These complications are discussed with respect to corporate taxation; analogous arguments apply here.

The current versus non-current job bias carries over into this analysis as well. Unless an employer is specifically allowed to finance

employee education subject to Internal Revenue Code specifications and limitations, most initial training and retraining expenditures are not deductible from personal taxable income. If an individual wants to self-invest in education to generate a higher stream of future income, tuition and other out-of-pocket costs are not deductible as costs of generating income unless clearly linked to the taxpayer's current occupation. Research and development which allows a self-employed individual to develop a brand new product is as deductible as research improving current lines of business. The research and development treatment suggests that out-of-pocket expenditures for education and retraining be deducted from gross income by the taxpayer investing in education regardless of whether the training allows the taxpayer to enter a new occupation upon completion of the training.

IV. Education and Training under the Corporate Income Tax.

A. Current Tax Treatment of Education and Training Expenditures.

1. Foregone production. When firms invest in capital equipment, there need be no sacrifice in current production. Prior capital remains in place, the workforce operates on the existing capital as usual. Investment in new capital can be financed through debt or retained earnings. A firm choosing to retrain its workforce might use periods of slack production to do so and would not sacrifice production for training. However, a firm choosing to retrain its workforce might sacrifice current production by devoting current labor resources to

training rather than production. Like, the foregone earnings of the student or trainee, these indirect firm costs of education and training are fully excludable from taxable income for the firm. In this respect, it is as if these indirect costs of investment in human capital are deductible from taxable corporate income.

2. Direct training costs. Training expenditures made by firms are generally tax deductible.[9] Deductible training costs generally fall into one of two expenditure categories for corporations -- compensation or direct business expenses. Firms make direct expenditures for training in a variety of ways. On the one hand, firms may purchase training materials and develop in-house training programs. Expenses for short-lived training materials are deducted from firm revenues as business operating expenses. For some types of in-house training, the firm may hire a professional trainer or other experienced personnel to conduct explicit training activities. Most commonly, other more experienced workers simply train less experienced workers through on-the-job example. Compensation paid to any of these training personnel is immediately deductible from firm revenues as is any other reasonable employee compensation.[10] In other cases, trainees may participate in some of the training provided directly by the company on uncompensated time. For example, new restaurant personnel may be asked to memorize company policy and the restaurant's menu on their own personal time. In such a case, costs incurred by the firms to develop the policy manual or menu is expensed by the firm. Generally, for most in-house training,

much of the direct cost of human capital investment is currently deductible by the firm.[11]

Another way to finance employee training is through tuition or training program reimbursement (for example, previous section 127 education plans). Firms often pay for employee participation in educational programs offered outside of the firm. In most cases, educational benefit payments and reimbursements are considered to be employee fringe benefits. Fringe benefits are a component of employee compensation and can be deducted from corporate revenue as costs doing business for corporate tax purposes (Internal Revenue Service, 1988c).

B. Tax Incentives under the Corporate Tax Code.

1. Education and training vs. physical capital. The immediate deductibility of most education and training costs biases corporate investment in favor of human capital investment, or at least those investments of special importance to the specific firm relative to other firms. The tax code requires amortization of physical capital investment. By spreading the total cost of physical capital investment over several tax periods, the tax code matches a share of the total cost of physical capital investment against resultant income. In fact, the tax code allows physical capital investment to be expensed in a short period relative to the actual useful life of the machinery. However, most investment expenditures for human capital are immediately expensed rather than amortized.

2. Education and training vs. research and development. Like investment in tangible physical capital, successful investment in research and development, education, and training leads to higher future earnings for the firm. In this respect, expenditures for research and development, training and education are analogous to spending for durable production machinery. Non-distortionary treatments of research and development, education, and training expenditures would follow the physical capital treatment of investment costs. Neither research and development, education, nor on-going training is treated in quite the same way as physical capital investment.

Like physical capital costs, research and development costs should be allocated across those production periods where resultant income is generated. Instead, Congress has decided to subsidize some research and development expenditures by allowing the spending to be expensed immediately. For certain types of development expenses, the taxpayer can elect to deduct the spending immediately or to amortize (Internal Revenue Service, 1988c). Immediately expensed research and development costs are favored relative to physical and human capital investment amounts which are not immediately and fully deductible. Amortized research and development costs might or might not be favored relative to physical capital investment depending on the relative relationships between income-generating years and amortization years. Except for capital equipment purchased for training purposes and "start up" training, costs of training seem to be immediately deductible under the corporate tax code. These deductible costs are treated much like

deductible research and development costs under the corporate tax system.

The tax code also allows a tax credit for increasing research and development expenditures. If more research and development is undertaken in the current tax year relative to an average of previous research and development, one-fifth of the increase can be deducted directly from the taxpayer's tax liability.[12] No such explicit tax credit exists for education or physical capital investment. Implicitly, training may benefit from the Targeted Jobs Tax Credit if eligible workers are hired and trained as a result. The former physical capital investment tax credit has been repealed.

V. Tax Code Changes to Restore Neutrality.

Generally speaking, the tax code should not favor certain types of investment unless a conscious decision is made to subsidize one type of investment relative to another. In order to avoid distortions in investment decisions through differential tax treatment, the tax code should treat different types of investment comparably.

A. Personal Income Tax Code.

A variety of reforms could reduce disparities in the current personal tax treatment of current job and non-current job investment in human capital. Each of three proposals -- extension of the employer fringe benefit exclusion, complete deductibility of all investment costs

for education and training, and amortization of educational investment costs -- is outlined and discussed in turn. However, before discussing the proposals, we turn to an important problem in the measurement of investment in education. The problem involves separating education for investment from education for consumption.

In general, educational pursuits include components of both consumption and investment. Courses taken purely for enjoyment but which never generate a stream of taxable income in return should not, in principle, be treated as human capital investment. A pure treatment of investment in human capital would require that investment and consumption components of educational expenditures be distinguished. Drawing such a distinction is administratively difficult.[13] A potential approach is to be found in section 127 of the tax code. Section 127 permitted certain educational expenditures financed by employers and widely available within the firm to be excluded from taxable income. Implicitly, this treatment makes sense if employers are less likely to finance frivolous education or education for consumption purposes than the individuals themselves (Stephan, 1984). As noted below, we propose the expensing or amortizing of educational expenses, in part, because the consumption component is not a great concern. Consumption is favored by the tax code in many other areas. The tax code allows subsidized meals provided by employers to escape taxation. Recreational facilities provided by employers are enjoyed by employees yet the value of this enjoyment is not included in taxable income. If consumption of education is a relatively small percentage of investment in education,

then the consumption component is merely treated like existing forms of subsidized consumption.

1. Extending the educational fringe benefit exclusion. Extending the income exclusion for employer-paid education for employees would reduce the disparity in treatment between investment in skills useful in the current job and a non-current job. Current proposals exclude from income all education benefits paid by the employer up to some dollar limit, as long as the benefit program is available rather freely to different income levels of employees. The extension would not distinguish between job-related and non-job-related benefits; if firms permitted non-job-related educational pursuits, so would the tax authorities. Employees working in firms without these plans might be encouraged by the tax code to invest in current job-related education but will be encouraged to a lesser extent or even discouraged from pursuing education leading to occupational change.

2. Deductibility of all education costs. Another possible remedy would be to allow immediate deductibility of all educational investment.[14] This would remove the bias against investment in skills required for new jobs. However, such a change would favor human capital investment over physical capital investment in both personal and corporate taxation. Immediate deductibility of all costs would mean that education for pleasure could be deducted together with education for investment. It also means an immediate tax savings largely for middle and upper income families since these families are more likely to

incur the highest out-of-pocket costs for education. Inequities could be reduced by phasing out the deduction at higher income levels and be limiting the deduction to the earned income of the trainee.[15] Another possibility would be to allow deductions for selected types of education and retraining. For example, education or training undertaken by those served with plant closing notification could be declared tax deductible.

If human capital investment and research and development are to be treated comparably by the tax code, immediate expensing of costs of both types of investment favors these two types of investment over investment in physical capital. If such an outcome is desired, then an option to expense education costs, parallel to the treatment of research and development costs, should be adopted in the personal tax code as well. If the objective of tax policy is to subsidize certain research and development costs relative to other investments even beyond the influence of the research tax credit, then neutrality might be established between human capital and physical capital investment while maintaining the potential research and development tax advantage. This could be accomplished in the personal tax code by allowing out-of-pocket educational expenses to be amortized, like long-lived physical capital investments, on Schedule C. Corporate tax treatment would also require amortization of training costs.

3. Amortization. Amortization would make the treatment of educational capital spending more comparable with that of physical capital. In theory, this would involve taxing (imputed) foregone earnings as income but then amortizing the capital acquired over the

working life of the trainee. From a practical standpoint, foregone earnings would have to be estimated. McNulty (1973) suggested that foregone earnings, based on the earnings of individuals of comparable age and education, could be included in the gross income of the student or trainee. However, this would treat individuals inequitably depending on whether their true foregone earnings fell short of or exceeded the average earnings of their age and educational cohort (McNulty, 1973). It also raises the same issues of personal choice mentioned earlier (Warren, 1980; Stephan, 1984). Comparable treatment of human and physical capital investment are more likely to be equivalent when the tax rates are proportional rather than progressive.

The current system, permitting no deduction, is one extreme position. The other extreme would be to treat all human capital investments the same way, and in the same way as physical capital investments.[16] Since foregone earnings are already excluded, that cost component would not be amortized under this proposal. The amortization period could be determined by the tax authorities according to the same principles which govern amortization of physical capital. Human capital investors who are unable to work for the full length of the amortization period can be allowed to take a large deduction in the final work period (Goode, 1976). This proposal raises problems since temporary absences from the labor force are indistinguishable from permanent withdrawals in some cases.

Taxpayers could report their total income to the Internal Revenue Service on Form 1040 as usual. If the taxpayer had undertaken formal training contributing to the income, these expenses could be amortized

according to a schedule to be legislated by Congress. The amortized deduction could be taken on the Schedule A. Revisions to the current tax forms would be minor. An administratively difficult aspect of this proposal is devising a neutral amortization treatment for educational investment. While investment in physical capital involves only direct spending, investment in human capital also includes foregone earnings which are excluded from taxable income. This feature requires that neutrality between investment in physical and human capital would require a more accelerated deduction schedule for the direct costs of physical capital investments than the direct costs of human capital investment. The problem is not insurmountable. However, further careful attention must be given to this issue before this treatment can be fully operational.

The treatment of self-employment income on Schedule C provides a model for a remedy for the distortion between investments in human capital which generate new skills and those which improve current skills. Schedule C allows self-employment gains and losses to be either added to or subtracted from other earned and nonearned income. If the self-employment activity were actively pursued during the current tax year, losses can be used fully to offset other income. If the self-employment does not meet particular participation rules for the tax year, deductions for losses may be limited or disallowed. A similar treatment can be applied to investments in human capital which involve the acquisition of new skills. The deductibility rules might be based on whether the taxpayer earns income which can be linked to earlier investment in human capital. If so, some portion of the human capital

direct expenditures may be deducted against the resultant earnings gained during that tax year. The amortization schedules for investments in human capital can be approximated in a manner comparable to the treatment of physical capital attained to generate self-employment income while taking into account the immediate "deductibility" of foregone earnings inherent in the investment in human capital.

The difficulty of this approach involves establishing criteria for deductibility to ensure that human capital investment be amortized but that educational consumption be excluded from the deductible portion of total education expenses. The taxpayer would have to demonstrate that the educational expenses incurred during the past or present can be directly linked to the taxpayer's current earnings stream for deductibility to be allowed. For graduate or professional training, this criterion could be applied in a rather straightforward manner, at least as long as the student pursued a standard course of study. Complications arise in considering broader education costs such as the cost of undergraduate courses unrelated to the student's eventual major or job requirements (McNulty, 1973). Provided that undergraduates take most courses broadly contributing to general human capital, the occasional course taken exclusively for pleasure might not be a cause for concern.[17]

B. Corporate Tax.

The corporate tax code treats costs incurred for investment in human capital differently from those costs incurred for both physical

capital investment and research and development. Complete tax neutrality would require that all three be treated in the same manner. According to the Haig-Simons definition, the costs of all three investments would be amortized against their corresponding streams of income. If the current treatment of physical capital could serve as a benchmark, human capital costs and research and development costs would be amortized according to comparable predetermined schedules. While we prefer amortization of those costs which result in future streams of income, restructuring the corporate tax code to amortize the costs of human capital investment and research and development might be administratively difficult. Short of this, we propose that human capital investment costs be treated comparably with research and development costs.

Nearly all costs of on-going human capital investment are immediately deductible by the firm. Wages of trainees, wages of trainers, educational fringe benefits, and short-lived training materials are all immediately deductible from corporate income. Firms can choose, however, how to expense some costs invested in research and development. At the firm's discretion, costs of research and development can be expensed immediately or amortized against future income. The amortization choice may actually favor investment in research and development depending on whether the firm is earning gains or losses. If the firm faces a loss, the firm must expense human capital investment costs as regular employee compensation but could defer deducting research and development costs in anticipation of gains in subsequent years. We propose that investment in human capital be

treated the same way. Firms should have the option of carrying the costs of investment in human capital forward to offset gains in subsequent periods.[18] The research and development tax credit complicates a neutral treatment of the costs of investment in human capital compared to research and development (Eisner, Albert, and Sullivan, 1984). Due to the complicated incentives introduced by the tax credit, further analysis of the tax credit incentives may be warranted. The more general treatment of the costs of investing in human capital and research and development can be made more comparable without explicit consideration of the tax credit.

VI. Conclusions.

Any analysis of tax incentives for education and training should proceed in two steps. First, the analysis should describe those changes necessary to achieve neutrality between education or training and other forms of investment. If some deviations from this neutral ideal are socially desirable, they should be recognized as such. We have concentrated on the first analytical step -- that of distinguishing the neutral tax treatment of human capital investment compared with other forms of investment.

For consistent treatment between human and physical capital investment throughout the tax code, all investment spending should be amortized against earnings when those earnings occur. This neutral treatment should apply to both employee expenditures on the personal income tax and employer expenditures on the corporate income tax. Such

a tax system design would be highly complex. Therefore, we do not propose such a solution, though it is conceptually preferable to any other.

Instead, for employee expenditures, we propose that all investment in education and training be immediately and fully deductible against the current wages and salaries of the trainee. We propose that these expenditures be immediately deductible on Schedule A of the personal income tax rather not subject to a two percent expenditure floor. To avoid an adverse distributive impact of the proposal, we propose that the deduction be phased out with higher total reported income. For the same reason, we also propose that the deduction be allowable against earned income only.

For employer expenditures on education and training, we recommend combining training and research and development into one category of expenditure. Our proposal is to treat investment in research and development and human capital identically under the corporate tax code. Since immediate expensing of research and development and human capital investment would be allowable under this proposal, neutrality between investments in human capital and physical capital would not be achieved.

NOTES

1. Purposeful non-neutrality is sometimes a warranted feature of the tax code. Some socially desirable activities may be underproduced in the absence of taxation and, therefore, can be encouraged through the tax code.

2. Also see results summarized in Rosen (1980) and Sgontz (1982).

3. Sgontz (1982) and Stephan (1984) offer good intuitive explanations of this result.

4. A serious shortcoming of existing research is probably the failure to recognize capital market imperfections. Even in a world without tax distortion, one type of investment might be favored over another because of the institutional structure of current capital markets. For example, an eighteen year-old might have reasonable access to educational loans but might find it difficult to find funding for a self-initiated research or capital project. Even if all three possibilities generated equal expected returns, we might expect a bias in favor of educational investment because our society has selected to remedy only the education-related capital market constraint. The distorting consequences of capital market imperfections have not been explicitly considered. These models also assume perfectly mobile labor markets. McNulty (1973) discusses various other reasons why human capital investment might be advantaged under the tax code. Some of these reasons include the tax status of earnings from state and municipal

bonds and the difference between the value of education and the tuition paid by the student.

5. If the education benefits exceeding the limit were current job-related, the employee could deduct the surplus benefits from income using Schedule A.

6. Legislation under consideration in the current Congress would extend the educational income exclusion. Under one form, the legislation (S.260 proposed by Senator Daniel Moynihan) would restore the tax treatment to that existing prior to the recent change and would extend this prior treatment indefinitely.

7. See the 1982 court decision regarding the FAA's "Second Career Training Program."

8. In each case, the retraining expenditures would be deductible from corporate revenue as employee compensation for tax purposes.

9. In defining training expenditures, we are excluding capital equipment purchased for training purposes. Capital equipment used for training is amortized. A special case exists in which other training costs can be amortized. If the training can be considered as a component of firm "start up costs," the training can be amortized (Internal Revenue Service, 1988c).

10. On-the-job training can be integrated into the production process. If so, training components of wages would be inseparable from production components (Stephan, 1984; Doeringer and Piore, 1985). See Doeringer

and Piore (1985) for descriptions of one-the-job and other forms of training.

11. Besides the immediate deductibility of employee wages and salaries paid during employee training time, the Targeted Jobs Tax Credit might be interpreted as a tax subsidy for human capital investment in specific circumstances. In general, the Targeted Jobs Tax Credit is intended to be an incentive for employers to hire members of particular groups. Members of these designated groups are those thought to experience particular difficulty in finding employment. The tax credit currently allows employers to credit 40 percent of the first $6,000 in first-year wages paid to members of these designated groups against the employer's total tax liability (Internal Revenue Service, 1988c; Daily Tax Report, 1989). The requirement that the credit only apply to first-year wages is meant as an incentive to hiring. A recent report issued by the National Commission for Employment Policy argues that this feature might not be a successful incentive to hiring during the time period studied, 1982 to 1987 (Daily Tax Report, 1989). In theory, however, employers who would hire workers from these designated groups as regular trainees, would also receive a substantial federal subsidy on training wages paid under the tax credit. Rather than the ordinary tax advantage of training costs (in this case, some portion of wages) being fully and immediately deductible, the tax credit allows even more of an incentive to training. A percentage of training wages, rather than being deductible, is credited directly against the employer's federal corporate tax liability. This training subsidy only occurs when the

subsidized wages represent training wages. In cases where an employer may hire "disadvantaged" workers for jobs requiring no simultaneous training, the tax credit subsidizes production wages only and not training wages. In most cases, the tax credit will subsidize some combination of production and training. The tax credit provision is scheduled to end as of the end of tax year 1989. The credit cannot apply to wages subsidized by another federal training program.

12. Eisner, Albert, and Sullivan (1984) argue that the research tax credit does not subsidize expansion of research and development in all cases. Because all research and development is measured in nominal dollars, the tax credit may be allowed when no real increase in research and development has occurred. The three year averaging may also introduce some unintended incentives since increasing research and development currently increases the base in future years, thus possibly limiting future tax credits.

13. See McNulty (1973) for an explanation of this problem and some proposed remedies.

14. McNulty (1973) discusses the advantages and disadvantages of this approach.

15. See McNulty (1973) for further discussion of the impacts of these proposals.

16. Such a proposal has been made by Richard Goode (1976). McNulty (1973) also agreed with the amortization proposal if the specified tax

objective is to change the tax code toward more accurate measurement of Haig-Simons income.

17. The amortization proposal contrasts with that recently put forth by Gross (1988). Gross argues that the current tax code favors education financed by home mortgage debt relative to other forms of educational debt. He further argues that human capital investment components should be deducted from earned income in theory. However, Gross believes that such a treatment is administratively infeasible and therefore, advocates that educational debt be exempted from the phase-out of consumer interest deductibility. As such, his proposal might be considered a "next best" solution to the problem on the grounds that a purer treatment is administratively impossible. Our proposal challenges this infeasibility assertion and suggests a possible way in which human capital investment might be treated more comparably with physical capital investment while removing the inefficiency arising when equivalent forms of educational investment are treated differently.

18. This may be complicated since firms may be unable to separate costs of one-the-job training from compensation for production. As a result, amortization of training is most likely to be applied to firm spending on educational assistance for employees or other easily separable training costs.

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